

Asset #57664.000 6380 - KY - Green River, Mathematics, Grade 9, SEQ #: 1 EQ: N

MA-11-5.1.08: Patterns, Relations and Functions - Students will identify the changes and explain how changes in parameters affect graphs of functions (linear, quadratic, absolute value, exponential) (e.g., compare y = x squared, y = 2x squared, y = (x-4) squared, and y = x squared + 3). DOK-2

- 1. To install a special carpet, the Home Store charges two fees:
 - an initial preparation fee to prepare the floor for the carpet and
 - a fee for each square yard of the carpet that is installed.

The store's salespersons use the graph below to quickly determine the total cost of installing different numbers of square yards of this carpet.

Total cost = first payment + monthly payments

- a. Write the number that is the *y*-intercept of the line on the graph.
- b. Write the number that is the slope of the line.
- c. Write the equation for the line in the graph. Let y represent the total cost and x represent the number of square yards installed.
- d. Suppose that the store manager decides to increase the cost per yard of the carpet but not to change the preparation fee. Explain how this change will affect both the *y*-intercept and the slope of the line.
- e. Suppose that the cost per yard is not changed but the preparation fee is increased. Explain how this change will affect both the *y*-intercept and the slope of the line.

BE SURE TO LABEL YOUR RESPONSES a, b, c, d, AND e.



Asset #57664.000 6380 - KY - Green River, Mathematics, Grade 9, SEQ #: 1 EQ: N

Scoring Guide

Score	Description
4	The student response demonstrates an exemplary understanding of the Algebraic Thinking concepts involved in identifying the values of the slope and y-intercept of a line graph and explaining how changes in the scenario affect these parameters.
3	The student response demonstrates a good understanding of the Algebraic Thinking concepts involved in identifying the values of the slope and y-intercept of a line graph and explaining how changes in the scenario affect these parameters. Although there is significant evidence that the student was able to recognize and apply the concepts involved, some aspect of the response is flawed. As a result the response merits 3 points.
2	The student response demonstrates a fair understanding of the Algebraic Thinking concepts involved in identifying the values of the slope and y-intercept of a line graph and explaining how changes in the scenario affect these parameters. While some aspects of the task are completed correctly, others are not. The mixed evidence provided by the student merits 2 points.
1	The student response demonstrates a minimal understanding of the Algebraic Thinking concepts involved in identifying the values of the slope and y-intercept of a line graph and explaining how changes in the scenario affect these parameters.
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	No response.

Training Notes

Part a: \$40 Part b: 20

Part c: y = 20x + 40

Part d: The slope will increase and the *y*-intercept will not change. Part e: The *y*-intercept will increase and the slope will not change.

1

Page 1 of 1

16.

a)myo

- P) 30
- c) (4-00)= 50(x-1)
- d) the slope will become steeper but the y-intercept will stay the same.
- e) the y-intercept will increase and the slope of the line will remain the same, but it will be higher on the graph (or more expensive).

Contract: 6351 Math

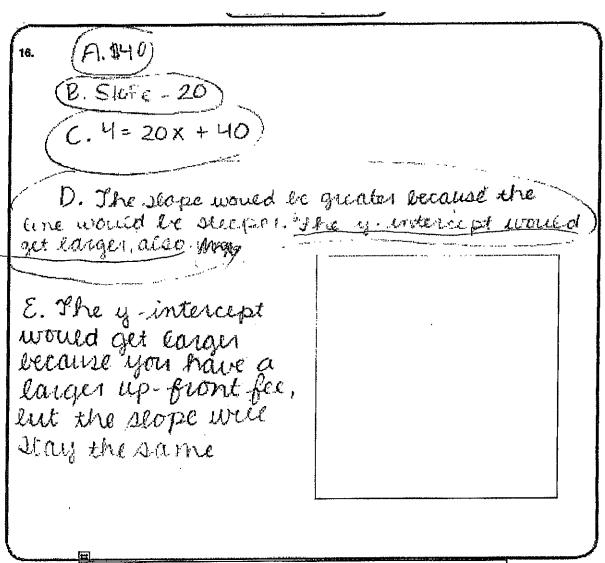
Grade: 07

Content: Math

Booklet: 1403333765

Response Code: MA03316

91 b1 C1-Pt-Hape form d1



Contract: 6351 Math

Grade: 07 Content: Math

Booklet: 1403333954 Response Code: MA03316

9 | 4 ptg
b | (3)
c | (4)

Page 1 of 1

16.

9.40

6. †

C.y=20+x

d. Q* will affect both lecouse if the price increases the graph would have a street line, not just a societant only.

E. Qt won't change much, it raill only affect where the line starts.

Contract: 6351 Math

Grade: 07

Content: Math

Booklet: 1403334011

Response Code: MA03316

GI ZZ phy
b Z

C X

C X - 404 h will change both

L I - prebably meany y-int will income w

& slope will stay the same

16.4.40
8.20
(0.40)(1,60)= 60.40 = 20.20
0.40)(1,60)= 10.00 = 20.20
60= 20(10) tb,60= 20.4b; (40=b; y= 20x+b)
60= 20(10) tb,60= 20.4b; (40=b; y= 20x+b)
D. there will be a larger slope and a steeper
line, o whethe larger also

E the y-intercept will be larger and the slope inter

Le smaller

(16.4.40

8.20

9 od enough

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.40

10.

Contract: 6351 Math

Grade: 07

Content: Math

Booklet: 1403333915 Response

Response Code: MA03316

9 1 7½ p/g
b 1 (2)
C 1
d 2
e x-rays slage will be armaler

;603 742 4294

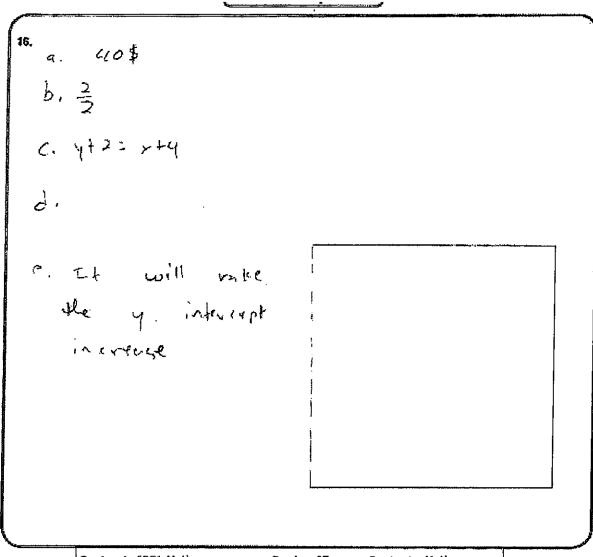
BMViewer

a) it will make it broker?

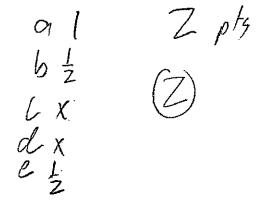
a) it will make it smaller?

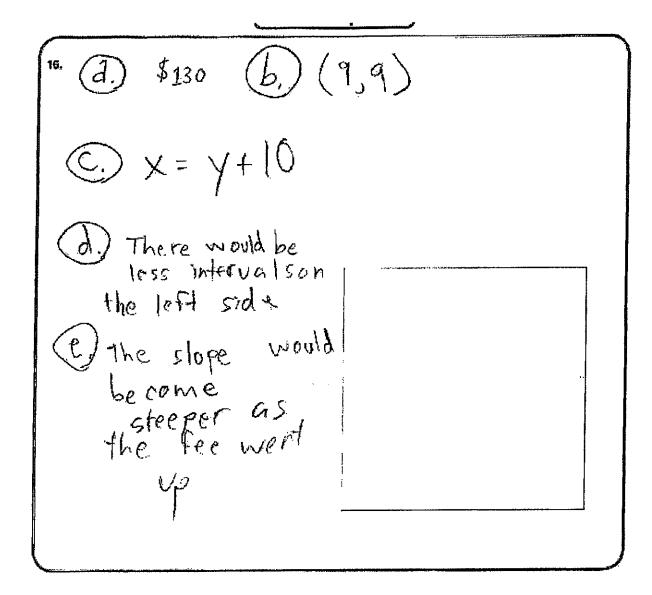
Contract: 6351 Math Booklet: 1403333380	Grade: 07 Content: Math Response Code: MA03316
01	1 pt
b 7	
CX	
dX	
ex	

Page 1 of 1



Contract: 6351 Math Booklet: 1403333164 Grade: 07 Content: Math Response Code: MA03316





Contract: 6351 Math	Grade: 07	Content: Math	
Booklet: 1403333546	Response Code:	MA03316	
0 X 6 X	\$ pt (P)		<i>N</i> .
LX dx-unclear	what distent	- 19 refunity to will increase on	K
CX-Gay 4 both			
	of per	ed Eahave, I tho snefering bestype	ught the Keet

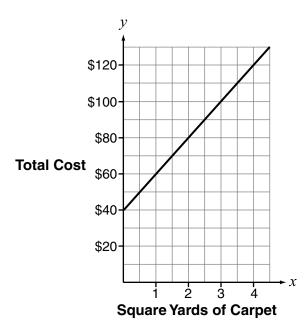


Asset #57669.000 6380 - KY - Green River, Mathematics, Grade 9, SEQ #: 2 EQ: N

MA-11-1.3.01: Number Operations - Students will solve real-world problems to specified accuracy levels by simplifying real number expressions involving addition, subtraction, multiplication, division, absolute value, integer exponents, roots (square, cube), and factorials. DOK-2

- 2. A truck costs \$15,600. The dealer offers two payment plans.
 - Plan A: A first payment of 20% of the cost of the truck followed by payments of \$585 per month for 24 months
 - Plan B: A first payment of $\frac{1}{3}$ of the cost of the truck followed by payments of \$905 per month for 1 year

How much more will the truck cost with Plan A than with Plan B? Show your work or explain how you found your answer.





Asset #57669.000 6380 - KY - Green River, Mathematics, Grade 9, SEQ #: 2 EQ: N

Scoring Guide

Score	Description
4	The student response demonstrates an exemplary understanding of the Number Properties and Operations concepts involved in solving real-world problems by writing and simplifying expressions with real numbers.
3	The student response demonstrates a good understanding of the Number Properties and Operations concepts involved in solving real-world problems by writing and simplifying expressions with real numbers. Although there is significant evidence that the student was able to recognize and apply the concepts involved, some aspect of the response is flawed. As a result the response merits 3 points.
2	The student response demonstrates a fair understanding of the Number Properties and Operations concepts involved in solving real-world problems by writing and simplifying expressions with real numbers. While some aspects of the task are completed correctly, others are not. The mixed evidence provided by the student merits 2 points.
1	The student response demonstrates a minimal understanding of the Number Properties and Operations concepts involved in solving real-world problems by writing and simplifying expressions with real numbers.
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	No response.

Training Notes

Additional Notes

Sample Response:

Plan A: first payment = $0.20 \times 15600 = \$3120$

24 installments = $24 \times 585 = 14040

Total cost = \$3120 + \$14040 = \$17,160

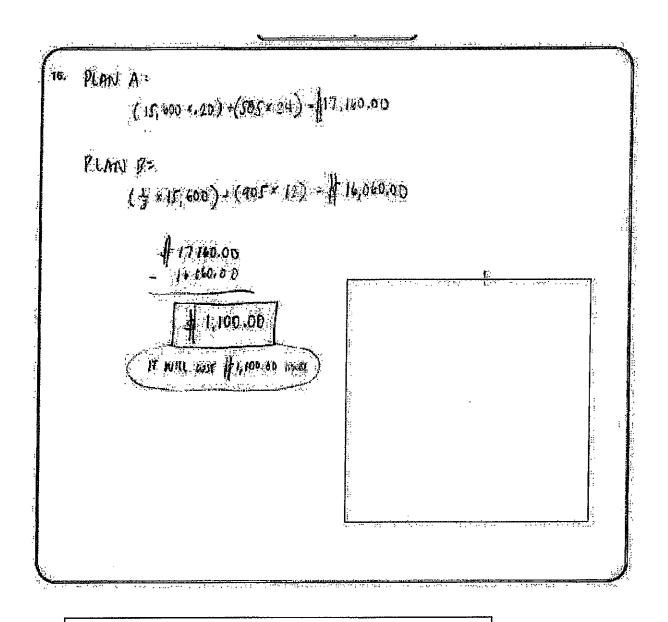
Plan B: first payment = $15600 \div 3 = \$5,200$

12 installments = $12 \times 905 = $10,860$

Total cost = \$5200 + 10860 = \$16,060

Difference = 17160 - 16060 = \$1100

Page 1 of 1



Contract: 6351 Math

Booklet: 1403331826

Response Code: MA08316

A

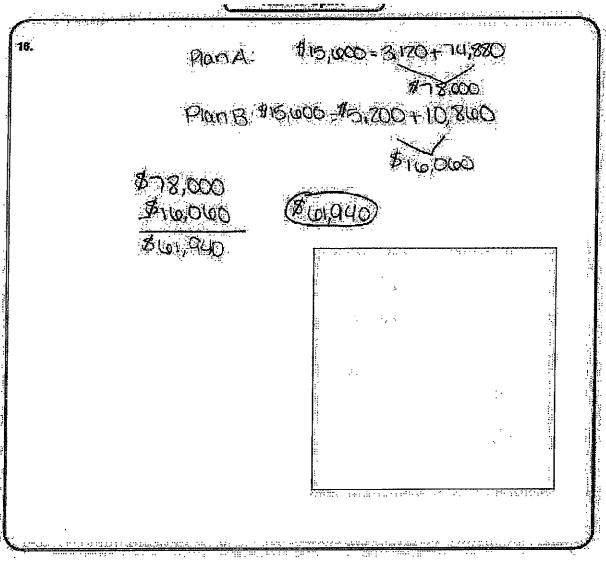
A

B

Correct to tails + wark (no subtotals but correct strategy)

Correct dif.

r\~



Contract: 6351 Math Grade: 07 Content: Math
Booklet: 1403332262 Response Code: MA08316

O A - wrong payment total + no work shown 50 = 0

2 B - correct total + subtotals, enough work shown?

1 - correct dif based on A+B

7/11/06

Plan A's final paymen would be 17.160 plans a final payment would be 26,920. The difference between plan A and Plan B 159,760. The truck will cost 9,860 dollars more.

Contract: 6351 Math

, : :;=:

Grade: 07 Content: Math

Booklet: 1403331507

5

Response Code: MA08316

1 A-cowect total

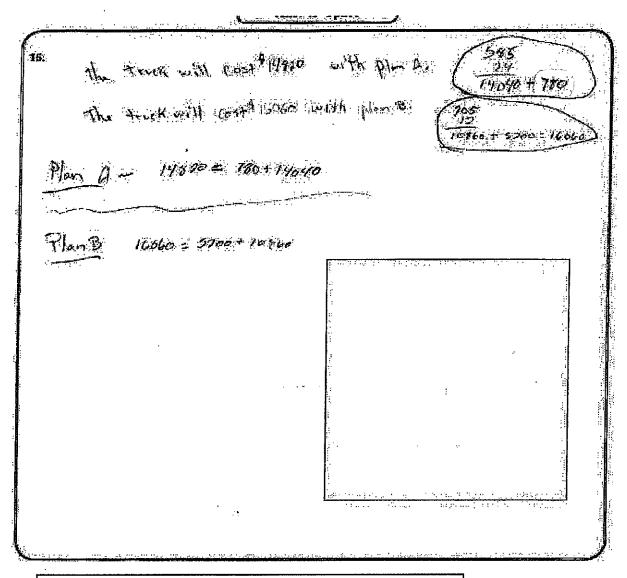
0B-Ø

1 correct dif based on A+B

a

(2)

Page 1 of 1



Contract: 6351 Math

Grade: 07

Content: Math

Booklet: 1403331354

Response Code: MA08316

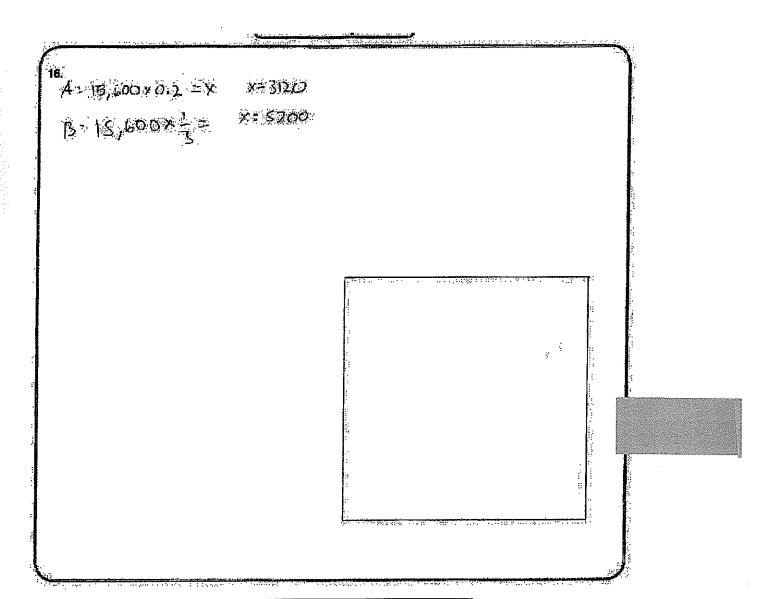
2

OA-correct payments total only, wrong down payment

2B-correct total + subtotals (enough work shown?)

o no dif found

A



Contract: 6351 Math Grade: 07 Content: Math Booklet: 1403331036

0/min1?

Response Code: MA08316

OB

o no dif found

Our min I for finding down payments

2 sechange

Page 1 of 1

-Oxfor min Plan A. Fred priviled 315 - 3705 16. Phyl. The prymer year 405=4806 Plan A is 1100 cheaper

Contract: 6351 Math

Grade: 07 Content: Math

Booklet: 1403330002

Response Code: MA08316

3???

? 3 for \$1,100 who or insufficient work and the comment of the work doesn't make much sense: in A finds 20% plus I payment, in B has \$3900 (? where they get this -it's not 1/3) plus I payment. The difference between A+B is \$100.

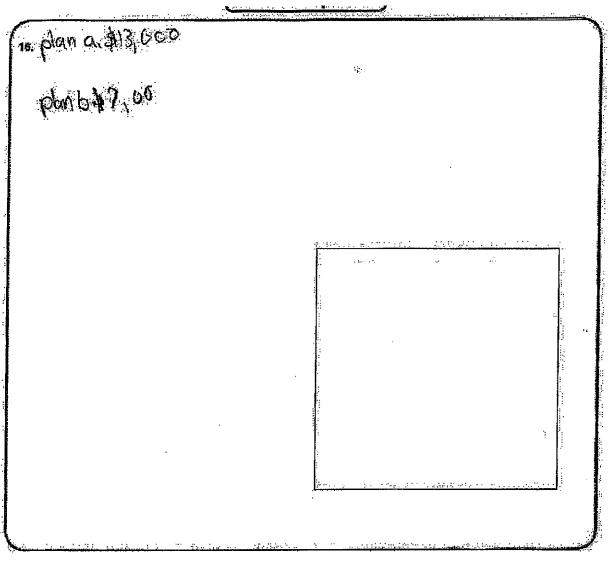
-OR I for Finding difference between A+B or 3 for getting \$1100?

Qetting \$1100?

Low and the Torrespond to the comment of the comment o

7/11/06

Page 1 of 1



Contract: 6351 Math Grade: 07 Content: Math
Booklet: 1403331797 Response Code: MA08316
0

\$ nothing correct



Asset #57675.000 6380 - KY - Green River, Mathematics, Grade 9, SEQ #: 3 EQ: N

MA-11-5.3.03: Equations and Inequalities - Students will model or solve first degree, two-variable equations and inequalities in real-world problems, and will graph the solutions on a coordinate plane. DOK-2

- 3. The drama club put on a play on Friday night. Some tickets were sold in advance and some tickets were sold at the door. A total of 300 tickets were sold.
 - a. Using *x* to represent the number of tickets sold in advance, write an expression that represents the number of tickets sold at the door.

The club charged \$3 for tickets sold in advance and \$4 for tickets sold at the door. The total amount of money collected from tickets was \$1072.

- b. Again using x to represent the number of tickets sold in advance, write **one** equation that can be used to find the number of \$3 tickets and the number of \$4 tickets sold. Your equation should contain no variables except x.
- c. How many \$3 tickets and how many \$4 tickets were sold? Show your work or explain how you found your answer.



Asset #57675.000 6380 - KY - Green River, Mathematics, Grade 9, SEQ #: 3 EQ: N

Scoring Guide

Score	Description
4	The student response demonstrates an exemplary understanding of the Algebraic Thinking concepts involved in modeling and solving first degree, two-variable equations in a real-world problem.
3	The student response demonstrates a good understanding of the Algebraic Thinking concepts involved in modeling and solving first degree, two-variable equations in a real-world problem. Although there is significant evidence that the student was able to recognize and apply the concepts involved, some aspect of the response is flawed. As a result the response merits 3 points.
2	The student response demonstrates a fair understanding of the Algebraic Thinking concepts involved in modeling and solving first degree, two-variable equations in a real-world problem. While some aspects of the task are completed correctly, others are not. The mixed evidence provided by the student merits 2 points.
1	The student response demonstrates a minimal understanding of the Algebraic Thinking concepts involved in modeling and solving first degree, two-variable equations in a real-world problem.
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	No response.

Training Notes

Additional Notes

• In part c, response does not have to use an algebraic solution in order to receive full credit.

Sample Response:

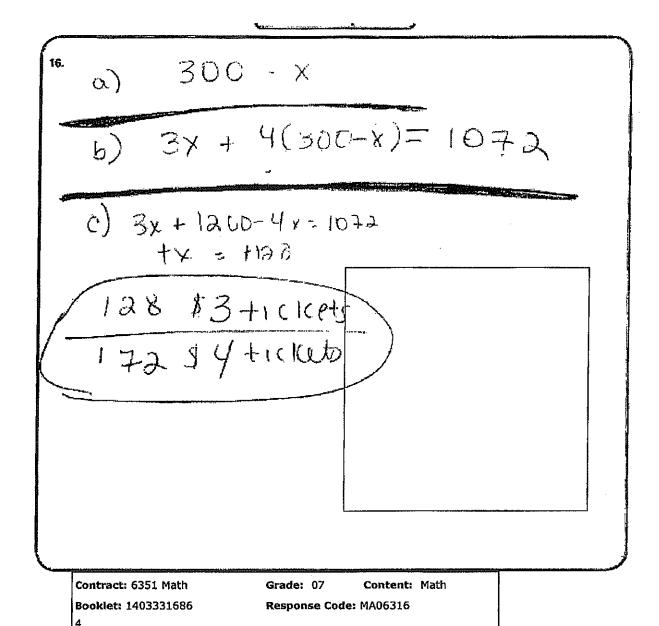
Part a: 300 –*x*

Part b: 1072 = 3x + 1200 - 4x

Part c: -128 = -xx = 128

So 128 tickets were sold in advance and 300 - 128 = 172 were sold at the door.

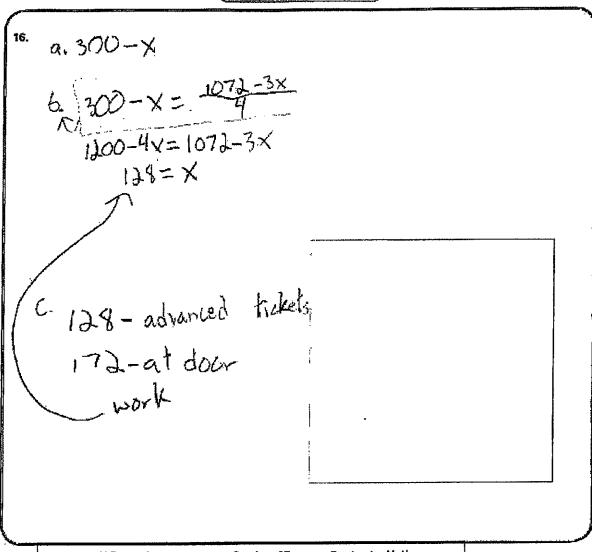
Page 1 of 1



A



Page 1 of 1



Contract: 6351 Math Booklet: 1403332849 Grade: 07

Content: Math

Response Code: MA06316

b. equation is equivalent to 1072 = 3x + 4(300 - x).

```
16. A x²=300
B 3x+2x=1072
7x=1072
C (A+D=300D=300-A)
(3A+4D=1072
3A+41800-A)=1072
3A+1200-4A=1072
-1A=-128
A=128
300-128=172=D
128 tickets sold in advance
172 tickets sold at door
128=3
172=8 4
```

Grade: 07

Content: Math

Booklet: 1403331767

Response Code: MA06316

l₂

Cornect answer to part 6 in 3 rd line of c

C.) correct answers with work, but not based on a. or b.

0 0 0

A

16. a. 500-x=+ b. 1072-3x=X-4(1072-3x) C. We the above equation 1072-3x=x-4(1072-3x) 1072-3x= x-4288-12x 1072-3x=13x-4794 +9784 5360-3x-13x 5=60=16x 335=x 355 weeks tickets

Contract: 6351 Math

Grade: 07

Content: Math

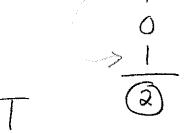
Booklet: 1403330836

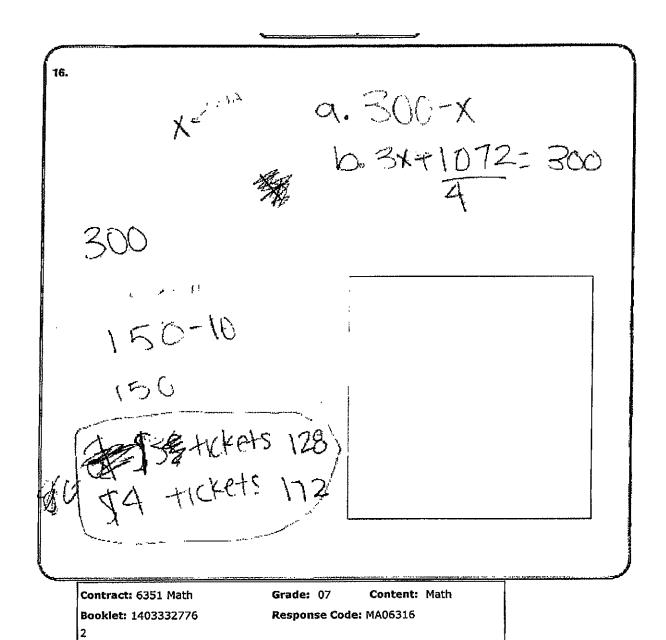
Response Code: MA06316

2?

| point for I correct answer.

C. x=335 is solution to b, but x shouldn't be >300 given premise of question.





C.) correct ANSWERS with NO WORK.

0 1 2

16.

Page 1 of 1

a x=300-y y=number of ticket

5. 1072=3x+(1072-3;x)

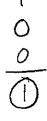
250.

C. 112 tickets were sold
a head of time and
184 tickets were
3010 at time door.
I did this by dividing
1072 then invitiplying
to see which timbers cook
be divided by 3 or 1
then I found a historial problem
I plugged the number minister pro

b. a tautology

Grade: 07

Response Code: MA06316



Content: Math

Contract: 6351 Math

Booklet: 1403330643

Page 1 of 1

Contract: 6351 Math

Grade: 07

Content: Math

Booklet: 1403330145

Response Code: MA06316

Ø

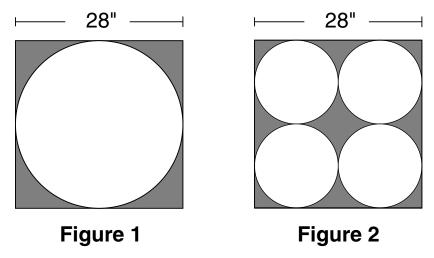
1



Asset #57911.000 6380 - KY - Green River, Mathematics, Grade 9, SEQ #: 4 EQ: N

MA-11-2.1.01: Measuring Physical Attributes - Students will determine the surface area and volume of right rectangular prisms, pyramids, cylinders, cones, and spheres in real-world problems. DOK-3

4. Study the figures below.



- a. What is the area of waste (shown shaded above) after cutting the largest possible circular area from a 28" square of sheet metal, as shown in Figure 1? Show or explain how you found your answer.
- b. What is the area of waste (shown shaded above) after cutting the four largest possible circular areas from a 28" square of sheet metal, as shown in Figure 2? Show or explain how you found your answer.
- c. Write a general expression that can be used to find the amount of waste when cutting n^2 largest possible circles of equal size from a square piece of sheet metal measuring 28" on a side? Show or explain how you found your answer.



Asset #57911.000 6380 - KY - Green River, Mathematics, Grade 9, SEQ #: 4 EQ: N

Scoring Guide

Score	Description
4	The student response demonstrates an exemplary understanding of the Measurement concepts involved in determining the area of irregular polygons and using algebra to describe the pattern and to model and solve a real-world problem.
3	The student response demonstrates a good understanding of the Measurement concepts involved in determining the area of irregular polygons and using algebra to describe the pattern and to model and solve a real-world problem. Although there is significant evidence that the student was able to recognize and apply the concepts involved, some aspect of the response is flawed. As a result the response merits 3 points.
2	The student response demonstrates a fair understanding of the Measurement concepts involved in determining the area of irregular polygons and using algebra to describe the pattern and to model and solve a real-world problem. While some aspects of the task are completed correctly, others are not. The mixed evidence provided by the student merits 2 points.
1	The student response demonstrates a minimal understanding of the Measurement concepts involved in determining the area of irregular polygons and using algebra to describe the pattern and to model and solve a real-world problem.
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	No response.

Training Notes

Part a: $28^2 - \pi (14)^2 = 169$ square inches

Part b: $28^2 - \pi (14)^2 (4) = 169$ square inches

Part c: $28^2 - \pi (28/2n)^2 n^2$

	<u>-</u> .
16. A. 168.2478399 agin. withol = find area of Arquer and of 10.	
sultact circles area from Syrian.	
B168.24.7839 (without find area of Aguare and	
circle, milliply one enclair med by 4 then subtl	ara.
it from Aquerica areas	
$(-98_{J}-(\mu l_{J}\times l_{J})$	

Content: Math Grade: 07

Response Code: MA09316 Booklet: 1403331278

+1 a) and, insufficient explanation definitely suff.

+(b) and

(c) ×

16. a) 168.56 m² Work b) 169.56 m² Work c) A=A=-A=00 (3 153.68 A) = 184 = 184 = 184 = 184 (15 44) A= 184 - (186T) (15 04) the area of wase for a square W the most a square W the most a square with abuning and the receiving state the rece of that so we square with a square with a creingyst
SALES (14) DAMAN (1)

Contract: 6351 Math Response Code: MA09316 Booklet: 1403331945 b) a explains with equation (not in terms of "n")

Grade: 07

Content: Math

医神经 a spring of melas 16. 6 1 = 5 : 9 netres

C L2 - XTY = A - area of waste 7.1 = 169 = 78.27 - 615=169 length of in I down it by dating the area of the subtracting the area of the circles to yelld the career of the wrester

Contract: 6351 Math

Grade: 07 Content: Math

Booklet: 1403330642

Response Code: MA09316

12

Α

10 0) V

16. The area of waste is 162,56 meters? First I found the area of the box, then the area of the Circle bunsing the Gimnla Pix of Then I subtended the area of the circle from the area of the box,

b. The area of waste is 168.56 inches? First I family the area of the square. Then I found the area of the circles. Then I subdiscled the area of the circles. From the area of the box

e. First von should get the area of the box with sides wrosing as that areas in 11 be 784 in Then Find that area of the area of the using the samula Pick. Then subtract me area of the riches from the orea of the area of the second of the area.

Contract: 6351 Math

Grade: 07

Content: Math

Booklet: 1403331719

Response Code: MA09316

11 b) and only

o i) morthiciant

16. A. 282 - 784. 648.00 [68.24784"]

16. A. 282 - 784. 648.00 [68.24784"]

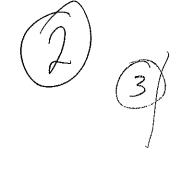
B. $28+2=14^2=196$ 195.86666 175.86666 175.86666 175.86666 195.86666 195.86666

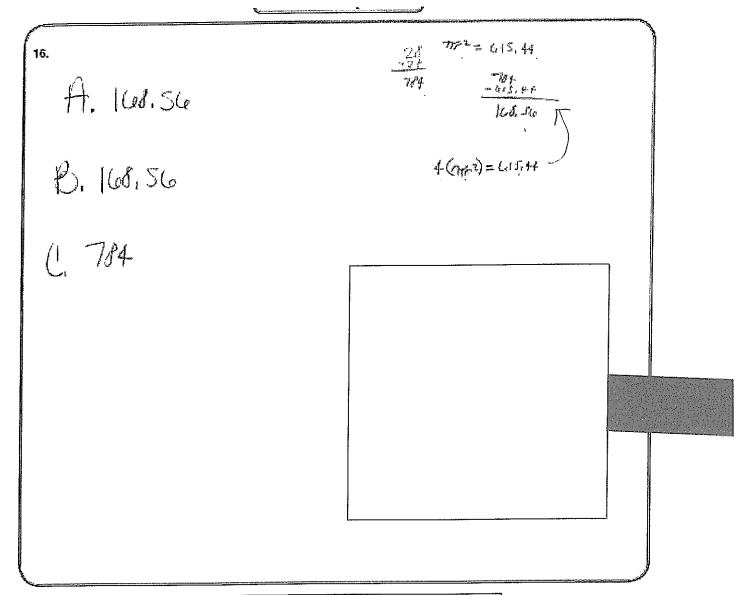
 $C_{1}\left(n^{2}=(n^{2}+28+2)+2\right)^{2}$

Contract: 6351 Math Booklet: 1403331163 Grade: 07 Content: Math

Response Code: MA09316

12 0) /





Grade: 07

Content: Math

Booklet: 1403332163

Response Code: MA09316

Α

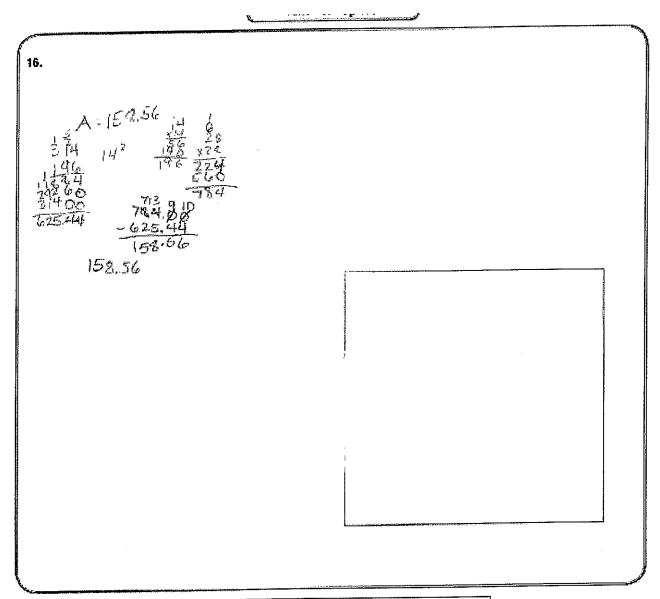
to a) ~ to b) monthinent work 0 0 ×

(5)

and the area of the or	WE MULL MUS 12,44
metal integet 615 mg	for first the area at the

Contract: 6351 Math	Grade: 07	Content:	Math	
Booklet: 1403330838	Response Cod	ie: MA09316		T

0 b) found area of circles...



Grade: 07

Content: Math

Booklet: 1403331379

Response Code: MA09316

a) comp error ... correct strategy

<u> </u>		
16. a. His Hayast (615-44)	The state of the s	- ****
p. 28 []	TO TOTAL	
c. n2.27 = wast	A NO. ALL VALLE VA	
	ACCULATION AND ACCULA	
	A CONTRACTOR OF THE PARTY OF TH	ن.

Grade: 07

Content: Math

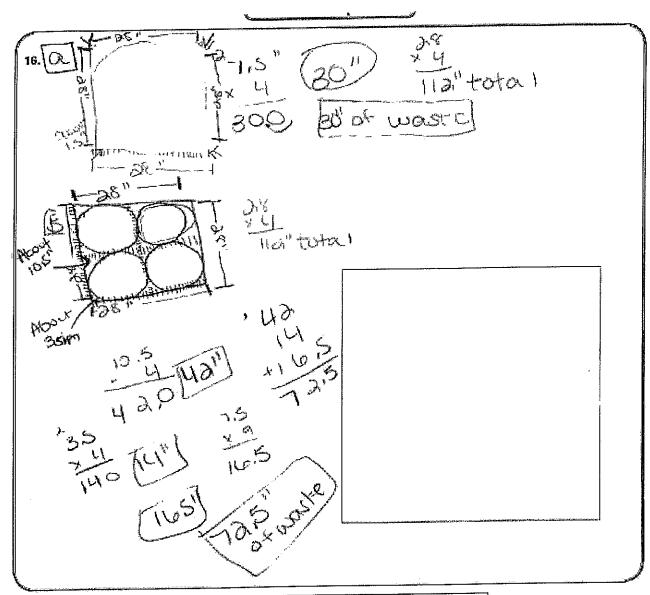
Booklet: 1403331393

Response Code: MA09316

Д

a) found one a of circle...

m. (?



Grade: 07 Content: Math

Booklet: 1403331350 Response Code: MA09316

H

 o^{a}

a 6)

00)

